



166 South Carter, Genoa City, WI 53128

Company:  
Model Tested:  
Certification Exhibit:

California Eastern Laboratories  
Gemini P0X1A  
RF Exposure

**FCC Code of Federal Regulations 47 Part 1.1307(b) (1)**

**RF Exposure Statement of Compliance**

**THE FOLLOWING MEETS THE ABOVE TEST SPECIFICATION**

Formal Name: MeshConnect ZICM357SP0-1 Zigbee Module  
Kind of Equipment: 802.15.4 Wireless Module  
Frequency Range: 2405-2480 MHz  
Test Configuration: DC powered transceiver module  
Model Number(s): ZICM357SP0-1 Rev X1a  
Model(s) Tested: ZICM357SP0 Rev X1a  
Serial Number(s): Radiated: EMC1; RF Conducted: EMC3  
Date of Tests: March 26 through March 29, 2012  
Test Conducted For: California Eastern Laboratories  
1253 N. Old Rand Road  
Wauconda, Illinois 60084, USA



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### Transmitter Information:

Maximum Conducted Output Power:	8.21 dBm (6.62 mW)
Maximum Effective Isotropic Radiated Power	9.14 dBm
Frequency:	2440 MHz
Antenna Type:	PCB Trace Antenna
Antenna Gain:	0.93 dBi

### Exposure Limit:

Maximum Permissible Exposure (MPE) limit for General Population / Uncontrolled Exposure in the frequency range 1500 – 100,000 MHz (ref: 47 CFR Part 1.1310 Table 1(b))

Limit: (S) (mW/cm<sup>2</sup>) = 1.0 mW/cm<sup>2</sup>

### MPE Calculation:

Power Density (mW/cm<sup>2</sup>):

$$S = \frac{PG}{4\pi R^2}$$

S = Power Density (mW/cm<sup>2</sup>)

P = Power Input to the antenna (mW)

G = Numeric Power Gain of the antenna

R = Distance to the center of the radiation of the antenna (cm)



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## Results:

P =	8.21	dBm						
G =	0.93	dBi						
R =	20	cm						
$\pi$	3.14159							
Transmit Frequency (MHz)	Output Power (dBm)	Output Power (mW)	Antenna Gain (dBi)	Antenna Gain	Distance (cm)	Power Density (mW/cm²)	Power Density Limit (mW/cm²)	Margin
2440	8.21	6.62217	0.93	1.23880	20	0.0016	1.0	0.998

## Summary of Results:

With a minimum separation distance of 20 centimeters as defined by FCC 2.1091(b), for a mobile device, the California Eastern Laboratories MeshConnect ZICM357SP0-1 Zigbee Module **meets** the RF exposure evaluation requirements for maximum permissible exposure to any radiating structure and the general population / uncontrolled exposure.

## Conclusion:

The California Eastern Laboratories MeshConnect ZICM357SP0-1 Zigbee Module operating under FCC part 15.247 complies with the requirements of FCC Part 1.1307(b)(1) for RF Exposure Evaluation.

Supporting data to follow...



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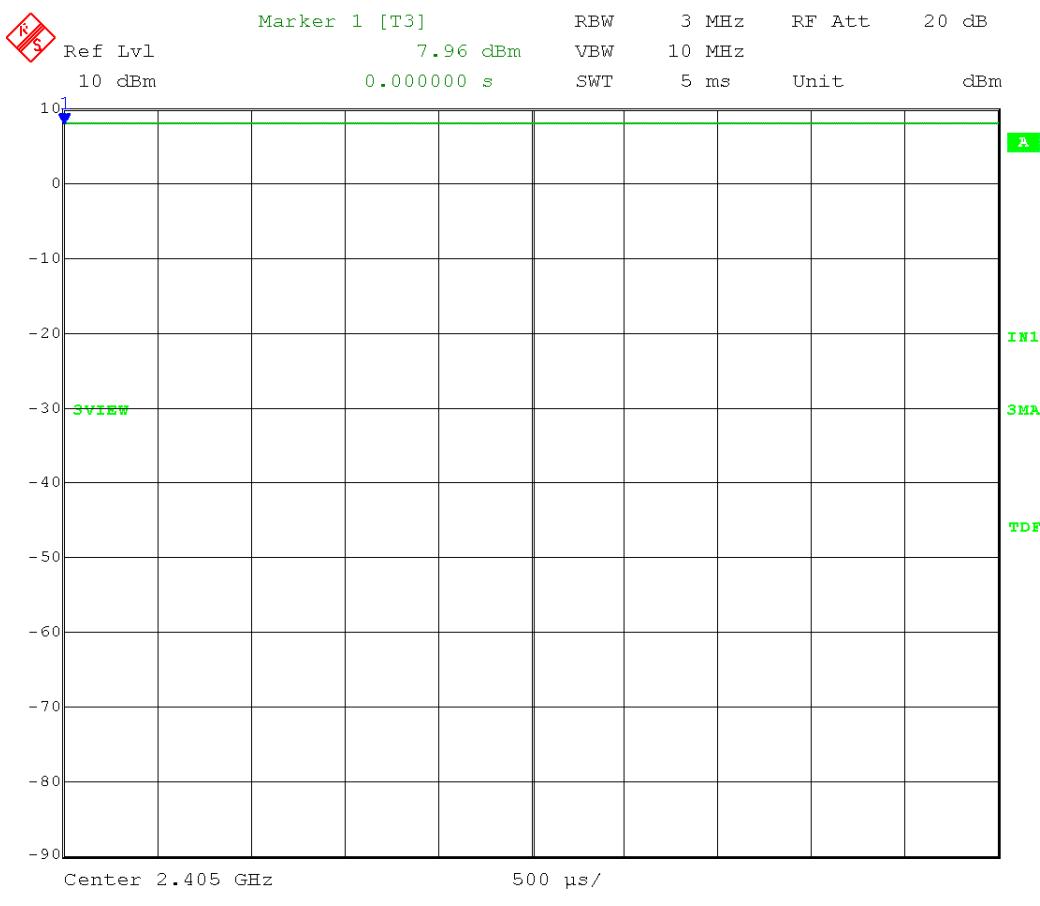
California Eastern Laboratories  
Gemini P0X1A  
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Test Date: 03-28-2012  
Company: California Eastern Laboratories  
EUT: Gemini P0X1A  
Test: Fundamental Emission Output Power - Conducted  
Operator: Craig B

Comment: RBW  $\geq$  EBW  
VBW  $\geq$  3 x RBW  
Span = zero  
Sweep = auto couple  
Detector = Peak  
Trace = max hold

Comment: Low Channel: Frequency – 2.405 GHz  
Output power setting 8

Fundamental Emission Output Power = 7.96 dBm = **6.25 mW**



Date: 28.MAR.2012 13:46:44



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Gemini P0X1A  
RF Exposure

Test Date: 03-28-2012  
Company: California Eastern Laboratories  
EUT: Gemini P0X1A  
Test: Fundamental Emission Output Power - Conducted  
Operator: Craig B

Comment: RBW  $\geq$  EBW  
VBW  $\geq$  3 x RBW  
Span = zero  
Sweep = auto couple  
Detector = Peak  
Trace = max hold

Comment: Middle Channel: Frequency – 2.440 GHz  
Output power setting 8

Fundamental Emission Output Power = **8.21 dBm = 6.62 mW**



Date: 28.MAR.2012 13:49:41



166 South Carter, Genoa City, WI 53128

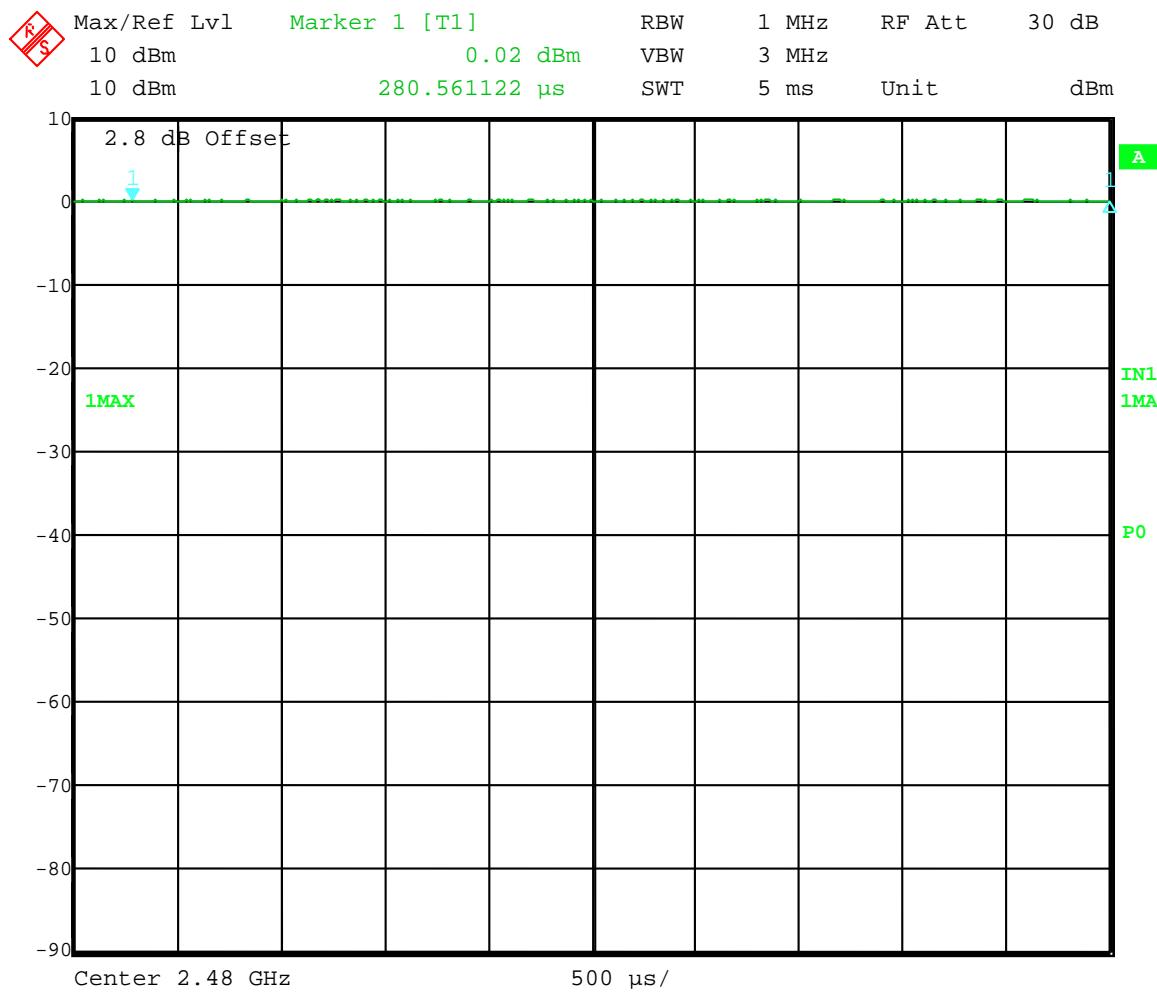
Company:  
Model Tested:  
Certification Exhibit:

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RF Exposure

Test Date: 04-09-2012  
Company: California Eastern Laboratories  
EUT: Gemini P0X1A  
Test: Fundamental Emission Output Power - Conducted  
Operator: Cooper L.  
  
Comment: RBW  $\geq$  EBW Sweep = auto couple  
VBW  $\geq$  3 x RBW Detector = Peak  
Span = zero Trace = max hold

Comment: High Channel: Frequency – 2.480 GHz  
Output power setting 0

Fundamental Emission Output Power = 0.0 dBm = **1.0 mW**



Date: 9.APR.2012 13:43:36

DLS Electronic Systems, Inc.

Company: California Eastern Laboratories

Operator: Craig B

Date of test: 03-27-2012

Temperature: 70 deg. F

Humidity: 44% R.H.

RBW: 3 MHz

VBW: 10 MHz

Span = zero

Detector: Peak

Trace mode: max hold

EIRP - Substitution Method

Model: Gemini P0X1A								
Channel: Low; 2405 MHz; Output power setting 8								
Frequency and Polarization (MHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)	Strength of emission [EIRP] (mW)
2405 Vertical	106.76	2.24	2.75	9.28	8.77			
2405 Horizontal	106.62	1.99	2.75	9.28	8.52			

EIRP = Signal generator output - cable loss + antenna gain

DLS Electronic Systems, Inc.

Company: California Eastern Laboratories

Operator: Craig B

Date of test: 03-27-2012

Temperature: 70 deg. F

Humidity: 44% R.H.

RBW: 3 MHz

VBW: 10 MHz

Span = zero

Detector: Peak

Trace mode: max hold

EIRP - Substitution Method

Model: Gemini P0X1A								
Channel: Mid; 2440 MHz; Output power setting 8								
Frequency and Polarization (MHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)	Strength of emission [EIRP] (mW)
2440 Vertical	107.05	2.61	2.78	9.31	9.14			
2440 Horizontal	106.78	2.34	2.78	9.31	8.87			

EIRP = Signal generator output - cable loss + antenna gain

DLS Electronic Systems, Inc.

Company: California Eastern Laboratories

Operator: Cooper L

Date of test: 04-09-2012

Temperature: 70 deg. F

Humidity: 44% R.H.

RBW: 3 MHz

VBW: 10 MHz

Span = zero

Detector: Peak

Trace mode: max hold

EIRP - Substitution Method

Model: Gemini P0X1A								
Channel: High; 2480 MHz; Output power setting 0								
Frequency and Polarization (MHz)	Max. Field Strength of EUT @ 3 meters (dBuV/m)	Output of Signal Generator when field strength equals that of EUT (dBm)	Correction factor for cable between Signal Gen. and subst. antenna (dB)	Gain of subst. antenna (dBi)	Strength of emission [EIRP] (dBm)	Limit (dBm)	Margin (dB)	Strength of emission [EIRP] (mW)
2480 Vertical	98.98	-5.55	2.81	9.35	0.99			
2480 Horizontal	98.71	-5.82	2.81	9.35	0.72			

EIRP = Signal generator output - cable loss + antenna gain